

REMARKS

Claims 1-27 currently remain in the application. Claims 1, 5, 12, 20 and 24-27 have been amended. No new matter has been added. Applicants respectfully request reconsideration in view of the preceding amendments and following remarks.

Applicants thank the Examiner for the courtesy extended during the telephonic interview with Applicants' representative on December 13, 2004. During this interview, the rejection under 35 U.S.C. § 101 was discussed.

The present invention relates to systems and methods for compressing video data. The systems and methods employ codebooks that minimize the content required in a digitized data stream. The codebooks are used in vector quantization, which takes as input a set of source vectors, calculates a smaller set of codevectors, converts the set of source vectors to indices for the codevectors.

Rejection under 35 U.S.C. § 101

Claims 1-27 were rejected under 35 U.S.C. §101 as a non-statutory process. The Examiner asserted that the claims consist solely of mathematical operations without practical application in the technological arts such as image data compression or quantization.

Independent claims 1, 5, 12 and 20 have been amended and now recite practical application in the art of image data compression. More specifically, independent claim 1, for example, has been amended and now recites "A method for compressing video data", "creating a codebook" and "compressing the video data by converting a set of source vectors included in the video data into a set of indices related to the codevectors in the codebook C". Support for the amendments be found throughout the Specification, and in particular, on page 11, line 1 to page 18, line 24, page 14, line 1 to line 14, and on page 5, line 26 to page 7, line 5, for example.

Accordingly, Applicant respectfully submits that all claims are supported by the specification, include statutory subject matter and requests withdrawal of the rejection under 35 U.S.C. § 101.

Rejection under 35 U.S.C. § 112

Claims 24-27 were rejected to under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Claims 24-27 have been amended to remove reference to 'non-conventional' image data. Applicants respectfully submit that amended claims 24-27 are supported by the specification (on page 15, line 5 to page 16 line 15, for example) and respectfully request withdrawal of the rejection under 35 U.S.C. § 112, first paragraph.

Rejection under 35 U.S.C. § 102

The Examiner rejected claims 12-16 and 19 under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,902,208 to Podilchuck et al. (referred to herein as 'Podilchuck'). Applicants respectfully traverse.

Podilchuck describes face recognition systems that perform recognition in the compressed domain. The face recognition systems code an object to be recognized, and the resultant coded data is matched against previously coded data as stored. By using image compression techniques, each person's face can be represented by a small set of numbers and a large number of faces may be scanned for recognition.

Amended independent claim 12 now recites "compressing the video data by converting a set of source vectors included in the video data into a set of indices related to the codevectors in the codebook C".

Podilchuck does not teach using indices, or converting source vectors included in the video data into indices. By contrast, Podilchuck decomposes extracted portions of an input image into blocks and linearly transforms each block to create input vectors. A classifier 24 then identifies a face contained in an image based on stored codebook vectors and which of the stored codebooks and vectors provide a match to the input vectors (see col. 3, lines 30-48 and col. 6, line 49 to col. 7, line 23). Podilchuck is notably silent on indices (they have no information that can be used for recognition), or converting source vectors included in the video data into indices.

For at least these reasons, Applicants respectfully submit that amended independent claim 12 is allowable.

Claims 13-16 and 19 each depend either directly or indirectly from independent claim 12 and are patentable over the art of record for at least the reasons set forth above with respect to the independent claim.

Withdrawal of the rejection of under 35 U.S.C. § 102(b) is therefore respectfully requested.

Rejection under 35 U.S.C. § 103

The Examiner rejected claims 5-8, 11 and 24 under 35 U.S.C. 103(a) as being unpatentable over Podilchuck in view of US Patent No. 5,902,208 to Tarolli et al. (referred to herein as 'Tarolli'). Applicants respectfully traverse.

Tarolli describes systems for compressing and decompressing a texture image. The technique uses a palletized color space that more closely matches colors in a texture image while allocating an unequal number of bits to the color channels. The invention quickly and efficiently decompresses each texel using a hardware decompression unit that does not perform any multiplication operations.

Amended independent claim 5 now recites "a graphics engine connected to said compression module, said graphics engine configured to compress the video data by converting a set of source vectors included in the video data into a set of indices related to the codevectors in the codebook C".

Neither Podilchuck or Tarolli, alone or in combination, teach or suggest such a graphics engine. More specifically, the art of record does not teach using indices, or converting source vectors included in the video data into indices as recited.

Applicants also traverse the combination of Podilchuck and Tarolli. Modifying either reference to work with the second reference would render each reference inoperable for its intended purpose. Podilchuck compares data in the compressed domain so as to avoid having to decompress video data. Tarolli details advanced systems of speedily decompressing video data. The two systems are quite opposite and cannot be combined without destroying the main techniques of each reference. "The proposed modification cannot render the prior art unsatisfactory for its intended purpose" (MPEP 2143.01).

For at least these reasons, Applicant respectfully submits that Podilchuck and Tarolli, either alone or in combination, do not teach or suggest independent claim 5 and that the independent claim is allowable.

Claims 6-8, 11 and 24 each depend either directly or indirectly from independent claim 5 and are patentable over Podilchuck and Tarolli for at least the reasons set forth above with respect to independent claim 5.

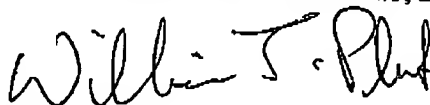
Withdrawal of the rejection of under 35 U.S.C. § 103(a) is therefore respectfully requested.

Applicants believe that all pending claims are allowable and respectfully requests a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Applicants hereby petition for an extension of time which may be required to maintain the pendency of this case, and any required fee for such extension or any further fee required in connection with the filing of this Response is to be charged to Deposit Account No. 50-0388 (Order No. CISC253).

Respectfully submitted,

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Limited Recognition under 37 C.F.R. §10.9(b)

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Expires: April 21, 2005



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